Abstract

Title: The assessment of the dynamic postural stability of tennis players

Objectives: The main aim of this thesis is to evaluate the dynamic postural stability of tennis players, who have been ranked in the Czech Republic and compare it with the dynamic postural stability the members of the population who do not play tennis. Another aim of this thesis is to evaluate the differences in the dynamic postural stability of male and female tennis players.

Methods: This study is a quantitative cross-sectional study involving 24 participants playing tennis and 48 participants who do not play tennis. NeuroCom SMART EquiTest, which is located in the Kinesiological Laboratory of Charles University, Faculty of Physical Education and Sport, was used for the measurement and evaluation of the dynamic postural stability. Seven tests were chosen for this study: The Motor Control Test, The Sensory Organization Test, The Limits of Stability, The Adaptation Test, The Rhythmic Weight Shift, The Unilateral Stance, and The Weight Bearing. The obtained data was processed by the Neurocom Balance Manager Software and Shapiro-Wilk Test, Student's t-test, Mann-Whitney Test and Cohen's d (the effect size) were used for the analysis of the data.

Results: Only a small amount of statistically significant data was found so we cannot state that the dynamic postural stability (tested on the NeuroCom SMART EquiTest) is different in tennis players and the members of the population who do not play tennis. In comparison of the mean values, the experimental group had a better result in 61%. The results in favour of tennis players: SOT - SOM $p = 0.04$; RWS-OAV F-LR $p = 0.03$; ES = 0.74. The results in favour of women playing tennis: ADT - Toes Up ES = 0.66; RWS-OAV S-FB $p = 0.007$, ES = 1.19, OAV M-LR ES = 0.62; US-MSV L-EO $p = 0.04$, ES = 0.86; MSV R-EO $p = 0.03$, ES = 0.55. The results in favour of men playing tennis: RWS - OAV M-LR ES = 0.62, DCL F-LR ES = 0.05.

Keywords: the dynamic postural stability, NeuroCom SMART EquiTest, tennis